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Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 1, January 2026

https://eurekaoa.com/index.php/5

TYPES OF TORCH INFECTIONS AND THEIR TRANSMISSION ROUTES

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Abstract

This article discusses the nature of TORCH infections, their risks to the mother and fetus during pregnancy, types of infections, routes of transmission, clinical manifestations, diagnosis, treatment, and prevention. TORCH infections can negatively affect fetal development, causing congenital anomalies, preterm birth, and perinatal mortality. Therefore, early detection and prevention of these infections before and during pregnancy are of great importance. The article also highlights the role of TORCH screening in maintaining women's reproductive health.

Keywords: TORCH infections, pregnancy, toxoplasmosis, rubella, cytomegalovirus, herpes, placenta, fetus, infectious diseases, prevention, diagnosis, reproductive health.

Introduction

Nowadays, the protection of maternal and child health is one of the most pressing areas in medicine. Any infectious process occurring in a woman's body during pregnancy can have a serious impact on fetal development. In particular, infections that progress silently, without clinical symptoms, pose a significant risk to the fetus.One of the groups of such dangerous infections is **TORCH infections**. These infections persist in the mother's body and can be transmitted to the fetus through the placenta, adversely affecting the formation of fetal organs

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and systems. As a result, congenital anomalies, damage to the nervous system, impaired vision and hearing, or even fetal death may occur.At present, early detection of TORCH infections, their prevention, and the development of treatment strategies are among the key tasks in obstetric practice. Therefore, this study aims to review the definition, types, transmission routes, diagnosis, and prevention of TORCH infections.In modern medical practice, ensuring the health of both mother and child remains a critical priority. Infectious diseases occurring during pregnancy pose a serious threat to fetal development. TORCH infections, in particular, can progress silently in the mother's body, cross the placenta, and lead to congenital anomalies, fetal death, or severe complications. For this reason, studying TORCH infections, their early detection, and prevention is of great importance.

TORCH infections are a group of infectious diseases that are present in pregnant women, transmitted to the fetus through the placenta, and can negatively affect the development of fetal organs and systems. The term **TORCH** is an English acronym representing:

- **T (Toxoplasmosis)** – toxoplasmosis
- **O (Other)** – other infections (syphilis, hepatitis, HIV, parvovirus, etc.)
- **R (Rubella)** – rubella
- **C (Cytomegalovirus)** – cytomegalovirus infection
- **H (Herpes simplex)** – herpes simplex virus

If these infections occur, especially during the first trimester of pregnancy, the risk of severe fetal developmental abnormalities is significantly increased.**TORCH infections may cause the following risks for the fetus:**

- congenital heart defects;
- impaired hearing and vision;
- damage to the nervous system;
- delayed cognitive development;
- preterm birth;

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- intrauterine fetal death.

Often, TORCH infections in the mother's body are asymptomatic, but the fetus can suffer serious damage. Therefore, TORCH screening is considered essential both before and during pregnancy.Transmission Routes of TORCH Infections**.**TORCH infections can be transmitted through several routes:

1. Transplacental route – transmitted from the mother to the fetus through maternal blood.
2. Sexual transmission – through unprotected sexual contact.
3. Household transmission – via contaminated hands or objects.
4. Foodborne transmission – through undercooked meat or contaminated water.
5. Airborne transmission – in some viral infections.
6. During childbirth – when the baby passes through the birth canal.
7. Breastfeeding – in rare cases.

Through these routes, infections acquired by the mother can also be transmitted to the fetus.Toxoplasmosis.Toxoplasmosis is a parasitic infection primarily transmitted through cat feces or consumption of raw or undercooked meat. If infection occurs during pregnancy, it can damage the fetus's brain, eyes, and internal organs. The baby may be born with congenital blindness or hydrocephalus.Rubella (German Measles).Rubella is a viral infection transmitted via airborne droplets. If a pregnant woman becomes infected during the first trimester, the fetus may develop congenital heart defects, hearing loss, and visual impairments. Therefore, vaccination before pregnancy is essential.Cytomegalovirus (CMV).Cytomegalovirus is transmitted through saliva, blood, urine, and sexual contact. It often progresses asymptomatically in the mother. Infected fetuses may experience nervous system damage and delayed cognitive development.Herpes Simplex Virus (HSV).Herpes is primarily transmitted sexually. During childbirth, the virus can be transmitted from the mother to the newborn. The baby may be born with skin, eye, and brain damage.Other Infections (O)This category includes syphilis, hepatitis B and C,

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HIV, parvovirus, and listeriosis. These infections can also negatively affect fetal development.Diagnosis of TORCH Infections**.**TORCH infections can be detected using:

- Blood tests (IgM and IgG antibodies);
- PCR testing;
- Ultrasound examination;
- Clinical assessment.

IgM antibodies indicate a recent infection, while IgG antibodies suggest a past infection or immunity.Treatment and Prevention.Treatment is conducted under medical supervision. Preventive measures include:

- pre-pregnancy screening;
- vaccination;
- personal hygiene;
- avoiding consumption of raw or undercooked meat;
- careful handling of cats;
- protected sexual intercourse.

TORCH infections pose a serious risk to maternal and fetal health. Early detection, prevention, and treatment can reduce the risk of congenital anomalies and complications. Therefore, it is recommended that every woman undergo TORCH screening before and during pregnancy.

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